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Approach and avoidance responses to a Tat dimension as related to reaction time and galvanic skin response on a word association test

J. Thor Nelson
University of Massachusetts Amherst

APPROACH AND AVOIDANCE RESPONSES TO A TAT DIMENSION AS RELATED TO REACTION TIME AND GALVANIC SKIN RESPONSE ON A WORD ASSOCIATION TEST

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Approach and Avoidance Responses to a TAT Dimension as Related to Reaction Time and Galvanic Skin Response on a Word Association Test

J. Thor Nelson

A.B. Pomona College

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Advisor: S. Epstein

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University of Massachusetts

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Introduction

The purpose of this investigation is to verify experimentally assumptions stemming from a model for the measurement of conflict by projective techniques (Epstein and Smith, 1956; Epstein and Fenz, in press; Leiman and Epstein, in press). This theory assumes that conflict, when of sufficient magnitude, may be inferred from three different levels of analysis.

The first level of analysis is that of verbal content. The theory hypothesizes that conflict on a projective test is indicated by a relative increase in drive-related responses to stimuli low in stimulus-relevance and a relative decrease in such responses to stimuli high in stimulus-relevance. Stimulus-relevance refers to the degree to which a stimulus elicits drive-related responses. Illustrated in Figure 1 are the tendencies to express and inhibit drive-related responses as a function of stimulus-relevance. As can be seen, a minimum of drive-related responses to TAT pictures high in stimulus-relevance may indicate not only a lack of drive, but also that inhibition is stronger than expression. With a socially unacceptable drive, such as aggression, a powerful source of inhibition is guilt. If little guilt is present, the drive should be expressed relatively directly, whereas if a high degree of guilt is present, the drive should be inhibited or expressed indirectly.

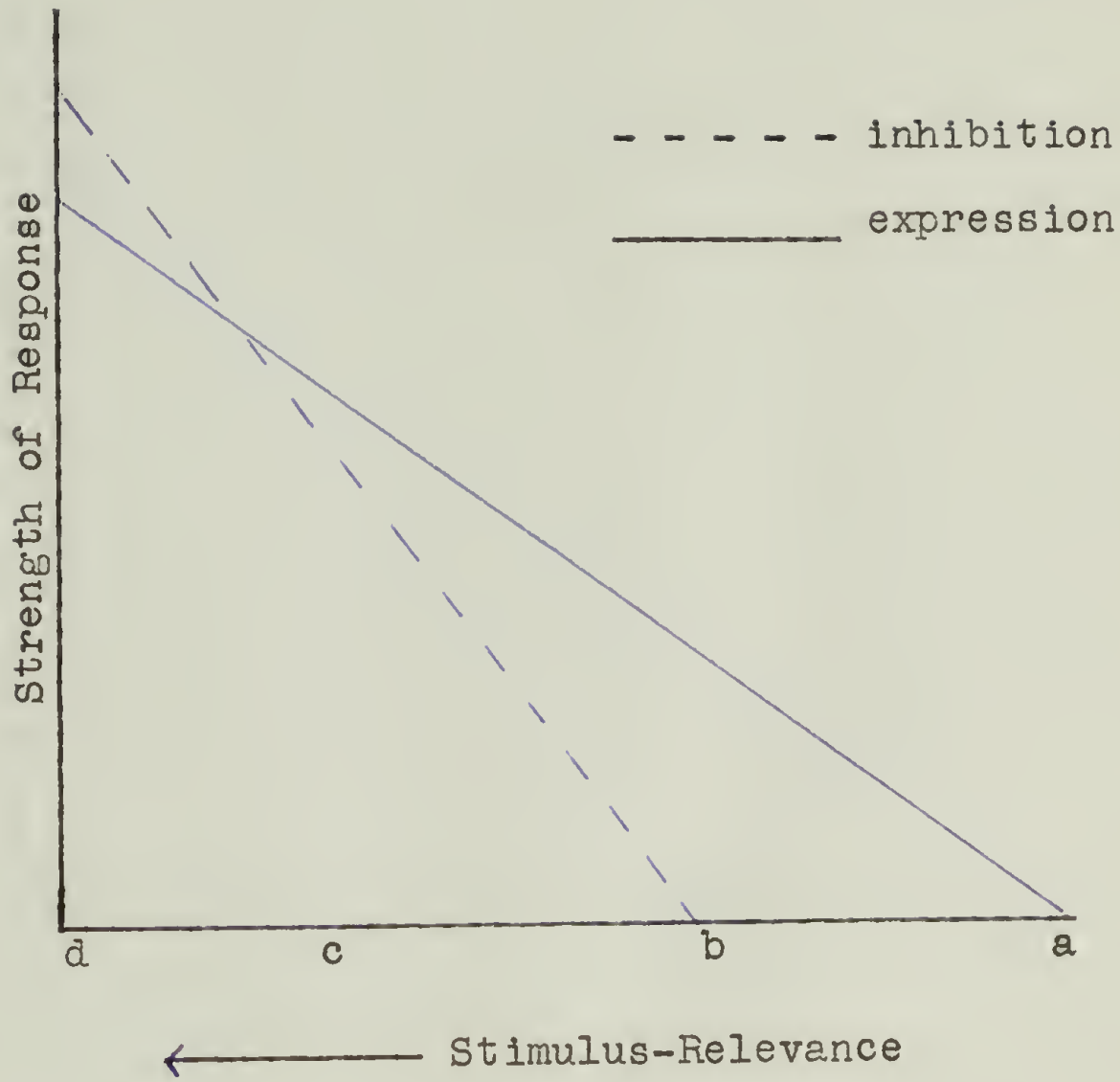

Figure 1. Strength of response as a function of stimulus-relevance and of expressive and inhibitory tendencies.

The second level of analysis is that of activation level. The theory hypothesizes that with a conflict of sufficient magnitude there occurs a sharp rise in the activation level of the individual with increasing stimulus-relevance along a dimension of stimulus-relevance. This hypothesis stems from the fact that the gradients of expression and inhibition are viewed as drives of approach and avoidance, with activating and directing properties (Epstein and Fenz, in press). It is assumed that the magnitude of the approach-avoidance conflict-produced activation is proportionate to the sum of the magnitudes of the approach and avoidance drives, disregarding algebraic sign. Furthermore, it is assumed that measures of autonomic activity, such as the galvanic skin response (GSR), measure this activation level.

The third level of analysis is that of cognitive deficit. Here the theory hypothesizes that individuals characterized by a conflict of sufficient magnitude demonstrate a decrease in adequacy of performance with increasing stimulus-relevance.

Statement of the Problem

This investigation is to ascertain that these three indications of conflict are in fact related. Subjects were chosen who were presumed to be in conflict over aggression as inferred from their verbal content to TAT pictures ordered along a dimension of stimulus-relevance. They were then given a word association test with a built-in dimension of stimulus-relevance to aggression. The GSR and reaction time

served as measures of activation and cognitive deficit, respectively. Evidence indicates that activation is a quantifiable dimension which can be measured by physiological indices (Malmo, 1959). One such measure is the GSR, which is the change in electrical conductance of the skin following stimulation. One measure of cognitive deficit with the word association test is reaction time. Words associated with areas of emotional disturbance lead to blocking or other evidences of disturbance (see Symonds, 1931; Rapaport, 1942). The most quantitative measure of such blocking is a longer reaction time, and this measure has been found to be consistently associated with emotional disturbance or affectivity (Rotter, 1951).

From these considerations, the following hypotheses are formulated: Individuals characterized by conflict over aggression, defined in terms of an expression of aggressive responses to TAT-type pictures low in stimulus-relevance and the inhibition of such responses to pictures high in stimulus-relevance, produce (a) a steeper GSR gradient and (b) a steeper gradient of reaction time to an increasing dimension of stimulus-relevance embedded in a word association test than individuals with relatively little conflict over aggression.

Method

Subjects

All subjects (Ss) were male undergraduates at the University of Massachusetts. They were chosen on the basis of

their stories to TAT-type pictures in a previous experiment (Saltz, 1961). In that experiment the TAT-type test consisted of six specially designed pictures of which two pictures contained no indications of hostility, but in which a hostile response was appropriate (low stimulus-relevance), and one picture in which a hostile response was strongly indicated (high stimulus-relevance). The three pictures were:

1. Low stimulus-relevance--A young man looking at a house.

2. Low stimulus-relevance--The dimly illumined figure of a man walking through the entrance of a door with one hand partly closed, so that it could suggest a clenched fist.

3. High stimulus-relevance--A young man holding a second man against the railing of a staircase. His hands are on the second man's throat. The second man's eyes are closed, and he is slumped over. This picture is similar to that of TAT picture 18 GF (Murray, 1936), except that male figures were substituted for females.

The stories to these pictures were scored according to the presence or absence of aggression. On the basis of this criterion, four groups were selected. Group I consisted of those individuals who gave drive-related (aggressive) responses to the pictures of low stimulus-relevance and inhibited such a response to the picture of high stimulus-relevance. For example, inhibition of a drive-related re-

sponse would be reflected by a story concerned with one person helping a sick friend up the stairs, or a boy kissing a girl after a date. This group is the primary conflict group in this study. Group II consisted of those individuals who gave no drive-related responses to the low stimulus-relevance pictures but gave a drive-related response to the high stimulus-relevance picture. This group is the primary control group. Group III consisted of those individuals who gave drive-related responses to both the low and the high stimulus-relevance pictures. Group IV consisted of those individuals who gave no drive-related responses to any of the three pictures.

The inclusion of Group III and Group IV made it possible to ascertain whether the expected differences in GSR and reaction time between Group I and Group II were due to performance on the high stimulus-relevant picture alone, the low stimulus-relevant pictures alone, or to the low and high relevance pictures in combination. Each of the four groups consisted of eight Ss who were paid for their services.

Materials

A forty-one-word word association list was constructed which contained twelve experimental words with three levels of relevance to aggression. In each of the drive-relevant levels--neutral, medium, and high--there were four words. The words were selected out of a pool of words which had been unanimously placed in the three categories by five climical psychologists. All of the twelve words were verbs,

and the neutral words were conceptually similar in that they referred to physical activity. Beginning with the eighth word of the word association list the twelve experimental words were randomly placed with two buffer words in between each. Following is the complete word association list, with neutral words followed by an (N), medium stimulus-relevance words followed by an (M), and high stimulus-relevance words followed by an (H): dog, salt, quiet, red, joy, slow, citizen, music, smash (H), sky, table, jump (N), bitter, carpet, push (M), book, moon, kick (H), loud, taxi, swim (N), bone, swift, chase (M), radiator, green, skate (N), flower, wagon, kill (H), radio, woman, climb (N), smooth, yellow, grab (M), comfort, butter, stab (H), wind, sand, tease (M).

The words were presented by a tape-recorder at thirty-second intervals after having first been screened for clarity of pronunciation. A warning signal preceded each word by two seconds. The Ss were instructed to say the first word that occurred to them. The responses were recorded by E as was the reaction time from the end of the stimulus word to the beginning of the response.

A Hunter Model 100A GSR amplifier was used for the measurement of the GSR. The apparatus was specially adapted for use with finger electrodes. The electrodes were placed on the ventral tip of the index and middle fingers of the dominant hand. Prior to taping on the electrodes, the area of contact was washed with alcohol, and then a layer of paste composed of Bentonite, glycerine, and Ringer's solution

was applied for non-polarization purposes. To measure resistances of greater than fifty-thousand ohms, parallel resistors were placed in the circuit and conversion charts employed to obtain true basal levels and resistance changes. Recordings of resistance were made by an Edin Ink Writing Galvanometer, Model 8001, using a Hunter Paper Puller, Model 3B.

Procedure

Upon entering the experimental room S was seated at a small table, facing E. A large screen hid from S's view the galvanometer equipment. Upon being seated S was told: "You were selected from a group of students who served in a previous experiment. However, this study is independent of the one in which you previously served. I would like you to be as relaxed as possible, and if you have any questions regarding the study I shall be happy to answer them after the experiment." (The Ss had received this same explanation in a less formal manner when they were initially approached by E to serve in the experiment.)

At this point the GSR electrodes were applied. After about three minutes, to permit the electrodes to polarize, calibration of S's basal level was performed. When this had been accomplished, the following instructions were given to S: "Now we will begin a test of speed of reaction to words. After you have heard a word--and be sure that you have heard a whole word--say the first word that occurs to

you as quickly as possible. If you are not sure you heard a word correctly, respond to what you thought it was. Please do not make any comments, or ask any questions between the words, but save them for the end of the test. Now, any questions before we begin?"

Results

Galvanic Skin Response

One problem that arises when working with the GSR is the unit of measurement to use. While no one measure has received unanimous endorsement, conductance units are generally acceptable (O.L. Lacey, 1947; Schlosberg and Stanley, 1952). Moreover, conductance, unlike resistance, is directly related to activation.

Scores in conductance units were obtained for each S for the twelve experimental words in the word association test. These scores represented the change in conductance from the pre-stimulus (immediately before the stimulus word was given) to the post-stimulus level (the first rise in conductance after the stimulus word was given). The conductance scores for the four words at each of the three levels were then averaged for each S. Thus, each S had a single score for neutral, medium, and high words. The statistical design corresponded to a split-plot, or Lindquist (1953) Type VI design, with the four groups of Ss representing the between variable, and the three levels of words representing the within variable.

It was hypothesized that individuals characterized by

conflict, as determined by thematic responses, produce a positive gradient of GSR as a function of increasing stimulus-relevance. An analysis of variance (Table 1) comparing the primary conflict and control group revealed a significant Words x Groups interaction ($F = 3.42$, 2 and 28 df, $p < .05$). This interaction is illustrated in Figure 2. As can be seen, the two groups produce quite different curves. The conflict group demonstrates a marked increase in GSR to medium stimulus-relevance words, with a slight decrease in GSR to high stimulus-relevance words. The control group, on the other hand, shows essentially no change in GSR as a function of stimulus-relevance. To ascertain that the points on the upper curve for the conflict Ss are significantly different, an analysis of variance (Table 2) was performed on the GSR as a function of stimulus-relevance for these Ss only. Using the same error term as in the overall analysis of the four groups, the source of variance due to Words was found to be significant ($F = 3.34$, 2 and 56 df, $p < .05$). Duncan's (1955) new multiple range test when applied to the points on the curve for the conflict Ss revealed significant differences between the neutral and the medium, and between the neutral and the high word-levels, whereas the difference between the medium and high word-levels is not significant.

An analysis of variance (Table 3) performed upon the GSR of the four groups as a function of stimulus-relevance revealed no significant sources of variance. ~~Illustrated in Figure 3 is the mean GSR of the four groups as a function~~

Table 1

Analysis of Variance of the GSR of the Conflict and Control Groups as a Function of Stimulus-Relevance

Source of Variance	df	SS	MS	F
Between Ss	15	157619.55		
Groups	1	32318.13	32318.13	3.61
Ss/Groups	14	125301.42	8950.10	
Within Ss	32	35654.21		
Words	2	1963.52	981.76	1.01
Words x Groups	2	6626.60	3313.30	3.42*
Ss x Words/Groups	28	27064.09	966.57	

* Significant at the .05 level

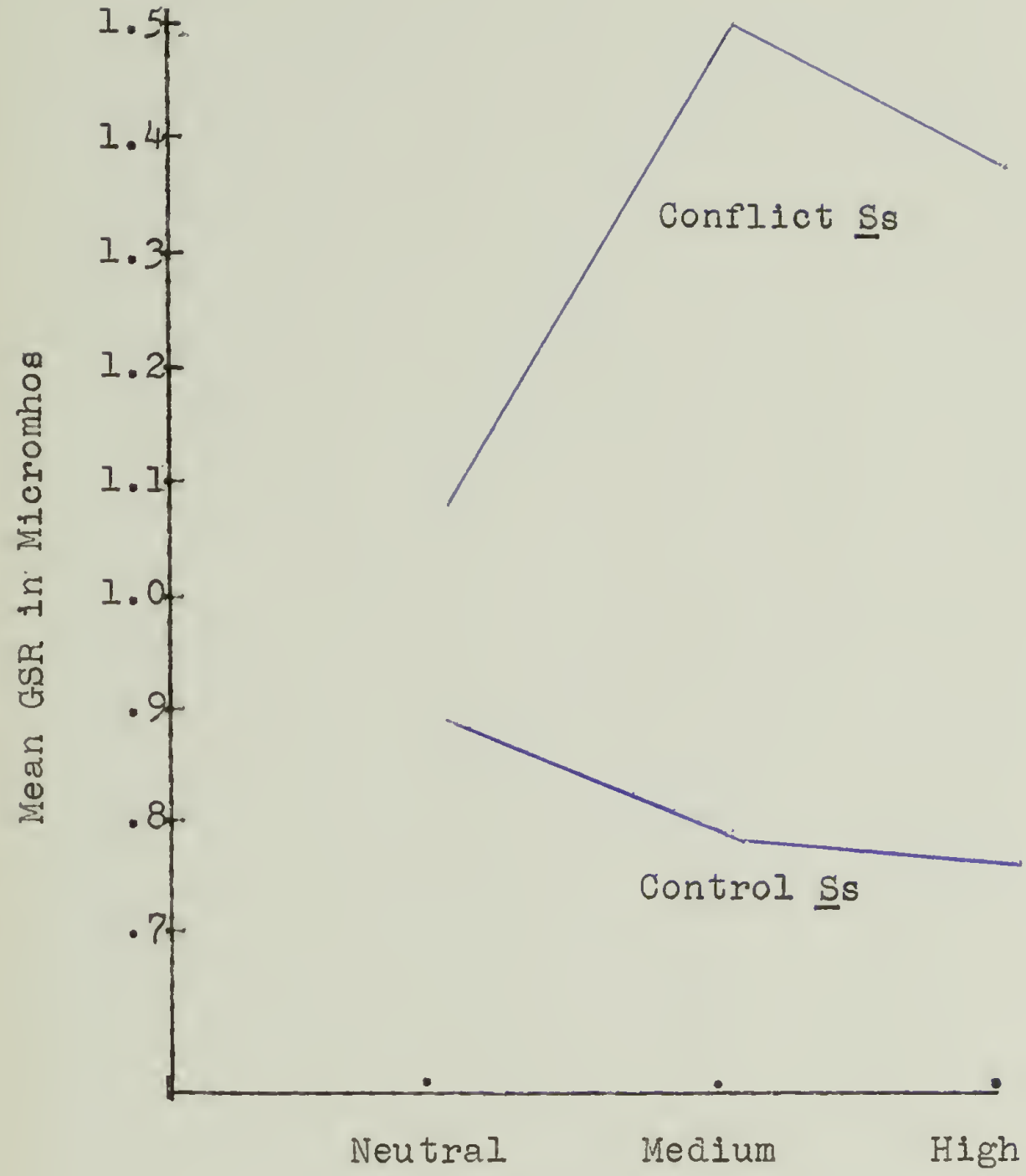

Figure 2. GSR for conflict and control groups as a function of stimulus-relevance.

Table 2

Analysis of Variance of Conductance Change as a Function of Stimulus-Relevance (Word-Level) for the Conflict Ss

Source of Variance	df	SS	MS	F
Between Ss	7	99616.92	14230.98	9.45
Words	2	7715.09	3857.54	3.34*
Ss x Words/Groups[a]	56	64250.20	1152.14	

* Significant at the .05 level

a. Error term based on all four groups

Table 3

Analysis of Variance of GSR of the Four Groups as a Function of Stimulus-Relevance

Source of Variance	df	SS	MS	F
Between Ss	31	245944.04		
Groups	3	57528.13	19176.04	2.84
Ss/Groups	28	188415.91	6729.13	
Within Ss	64	75121.76		
Words	2	1918.59	959.29	.83
Words x Groups	6	8952.97	1492.16	1.29
Ss x Words/Groups	56	64250.20	1152.14	

~~of stimulus-relevance revealed no significant sources of variance~~. Illustrated in Figure 3 is the mean GSR of the four groups as a function of stimulus-relevance. The means of these plotted points are given in Table 4. This lack of significance precludes the possibility of ascertaining whether the differences in GSR between the conflict and control groups is due to performance on the high stimulus-relevance TAT picture alone, the low stimulus-relevance picture alone, or to the low and high relevance pictures in combination. However, inspection of Figure 3 reveals that there was a tendency for groups I and IV (characterized by inhibition of aggressive responses to the high stimulus-relevance TAT picture) to possess the same kind of gradient. Both of these groups demonstrated an increase in GSR to words at the midpoint of the stimulus-relevance dimension, and then a decrease in GSR to the most highly stimulus-relevant words. Also, groups II and III (characterized by expression of aggressive responses to the high stimulus-relevance TAT picture) demonstrated a relatively flat gradient as a function of stimulus-relevance (word level). These two tendencies imply that inhibition of an aggressive response to a high stimulus-relevance TAT picture is more critical as an indication of conflict. The lack of significance of this tendency may be due to the markedly different ~~basal levels~~ MEAN GSR of the four groups.

Reaction Time

It was hypothesized that individuals characterized by

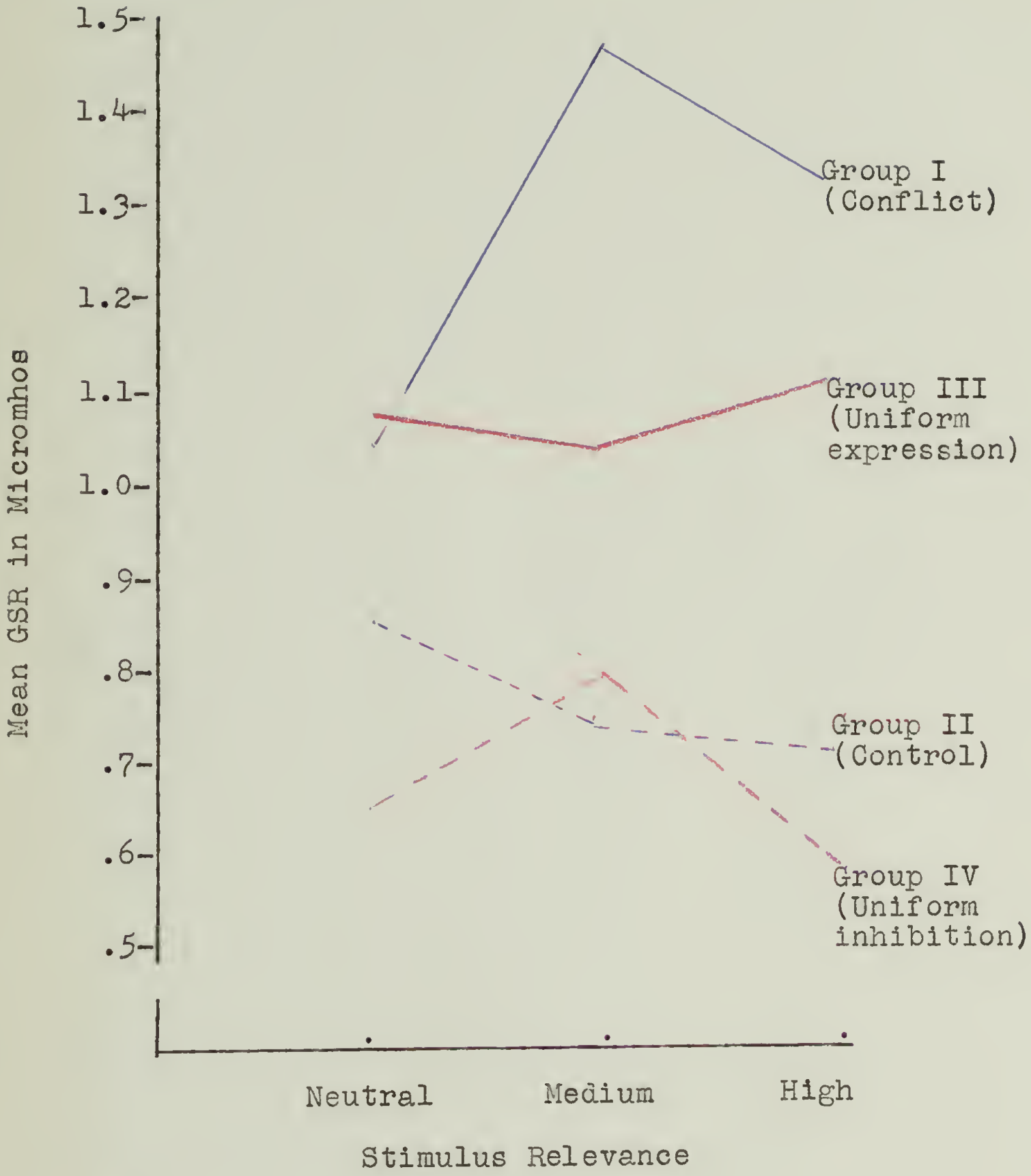

Figure 3. GSR for the four groups as a function of stimulus-relevance.

Table 4

Mean GSR in Micromhos of the Four Groups at the Three Levels of Stimulus-Relevance (Word-Level)

	Neutral	Medium	High
Group I (Conflict)	1.06	1.48	1.36
Group II (Control)	.86	.75	.72
Group III (Uniform expression)	1.07	1.04	1.13
Group IV (Uniform inhibition)	.66	.80	.58

conflict exhibit a gradient of reaction time as a function of stimulus-relevance. An analysis of variance (Table 5) of the conflict and control groups revealed a significant Words x Groups interaction ($F = 4.50$, 2 and 14 df, $p < .05$). This interaction is illustrated in Figure 4. Inspection of this figure reveals that the control group demonstrates a decrease in reaction time to words in the medium stimulus-relevance category, and an increase to words in the high category. The conflict group, on the other hand, demonstrates an increase in reaction time to words in the medium category, and a decrease to words in the high category. To determine if the points on the curve for the conflict Ss are significantly different, an analysis of variance (Table 6) was performed upon only their reaction times as a function of stimulus-relevance. This analysis revealed that the source of variance due to Words is significant ($F = 3.75$, 2 and 14 df, $p < .05$). However, as in the case of the GSR, the conflict Ss do not show a monotonically increasing gradient with increasing stimulus-relevance. When the source of variance due to Words for the conflict group is broken down (Table 6) a significant difference is found between the neutral word-level and the drive-related (medium plus high) word level ($F = 7.50$, 1 and 14 df, $p < .025$). Thus, the conflict Ss show a significant difference in reaction time to aggressive and non-aggressive words. This same test performed on the primary control group revealed that there is no significant difference between reaction time performance on the neutral and aggressive words.

Table 5

Analysis of Variance of the Reaction Time of the Conflict and Control Groups as a Function of Stimulus-Relevance

Source of Variance	df	SS	MS	F
Between Ss	15	6.13		
Groups	1	1.33	1.33	3.91
Ss/Groups	14	4.80	.34	
Within Ss	32	3.14		
Words	2	.18	.09	1.12
Words x Groups	2	.73	.36	4.50*
Ss x Words/Groups	28	2.23	.08	

* Significant at the .05 level

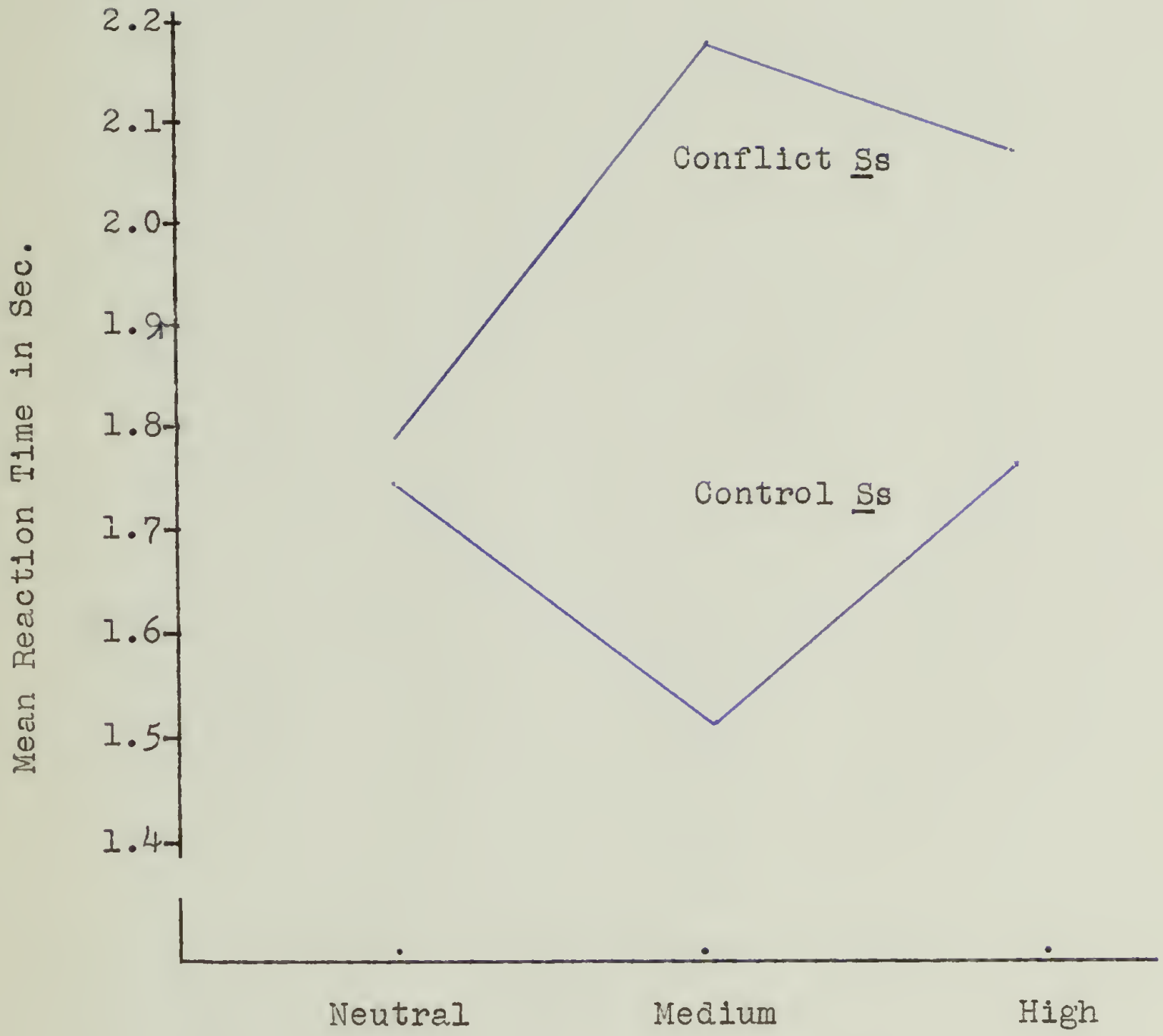

Figure 4. Reaction time for conflict and control groups as a function of stimulus relevance.

Table 6

Analysis of Variance of the Reaction Time of the Conflict Group as a Function of Stimulus-Relevance, with a Comparison Made Between Neutral Word Level Versus Drive-Relevant (Medium plus High) Word Levels

Source of Variance	df	SS	MS	F
Between Ss	7	3.75	.53	5.89
Words	2	.60	.30	3.75*
Neutral versus Drive-Relevant	1	.60	.60	7.50**
Ss x Words	14	1.22	.08	

* Significant at the .05 level
** Significant at the .025 level

An analysis of variance performed upon the reaction times of the four groups (Table 7) revealed a significant Words x Groups interaction ($F = 2.40$, 6 and 56 df, $p < .05$). The means of these plotted points are given in Table 8. This interaction is illustrated in Figure 5. Inspection of Figure 5 reveals that Groups I and IV react similarly to the three levels of words. These two groups (characterized by inhibition of an aggressive response to the high stimulus-relevance picture in the TAT test) manifest a heightened reaction time to the medium stimulus-relevance words, with a slight decrease in reaction time to the high stimulus words. Groups II and III (characterized by expression of an aggressive response to the high stimulus-relevance picture in the TAT test) demonstrate an opposite kind of effect. These two groups show a relative decrease in reaction time to the medium words and a slight increase to the high stimulus-relevance words.

When the significant source of variance due to the Words x Groups interaction is broken down into its component df, it is found that when Groups I and IV are combined and compared to Groups II and III combined (Table 7), there is a significant difference in their reaction times as a function of stimulus-relevance ($F = 4.10$, 10, 2 and 56 df, $p < .05$). This interaction is illustrated in Figure 6. As can be seen, the curve for the combined Groups I and IV reveals a marked increase in reaction time to the medium

Table 7

Analysis of Variance of Reaction Time of the Four Groups as a Function of Stimulus-Relevance

Source of Variance	df	SS	MS	F
Between Ss	31	31.61		
Groups	3	.88	.29	.26
Ss/Groups	28	30.73	1.09	
Within Ss	64	15.23		
Words	2	.58	.29	1.45
Words x Groups	6			
Words x Groups H[a]	2	1.64	.82	4.10*
Words x Groups L[b]	2	.57	.28	1.40
Wds x Gps H x Gps L	2	.69	.34	1.70
Ss x Words/Groups	56	11.75	.20	

* Significant at the .025 level

a. Groups H represent the combination of Groups I and IV (Ss who inhibited an aggressive response to the high stimulus-relevance TAT picture) compared to Groups II and III (Ss who expressed an aggressive response to the high stimulus-relevance picture).

b. Groups L represent the combination of Groups II and IV (Ss who inhibited an aggressive response to the low stimulus-relevance TAT pictures) compared to Groups I and III (Ss who expressed an aggressive response to the low stimulus-relevance picture).

Table 8

Mean Reaction Time of the Four Groups

at the Three Levels of Words

	Neutral	Medium	High
Group I (Conflict)	1.77	2.17	2.04
Group II (Control)	1.72	1.49	1.74
Group III (Uniform expression)	1.61	1.57	1.96
Group IV (Uniform inhibition)	1.67	2.17	1.78

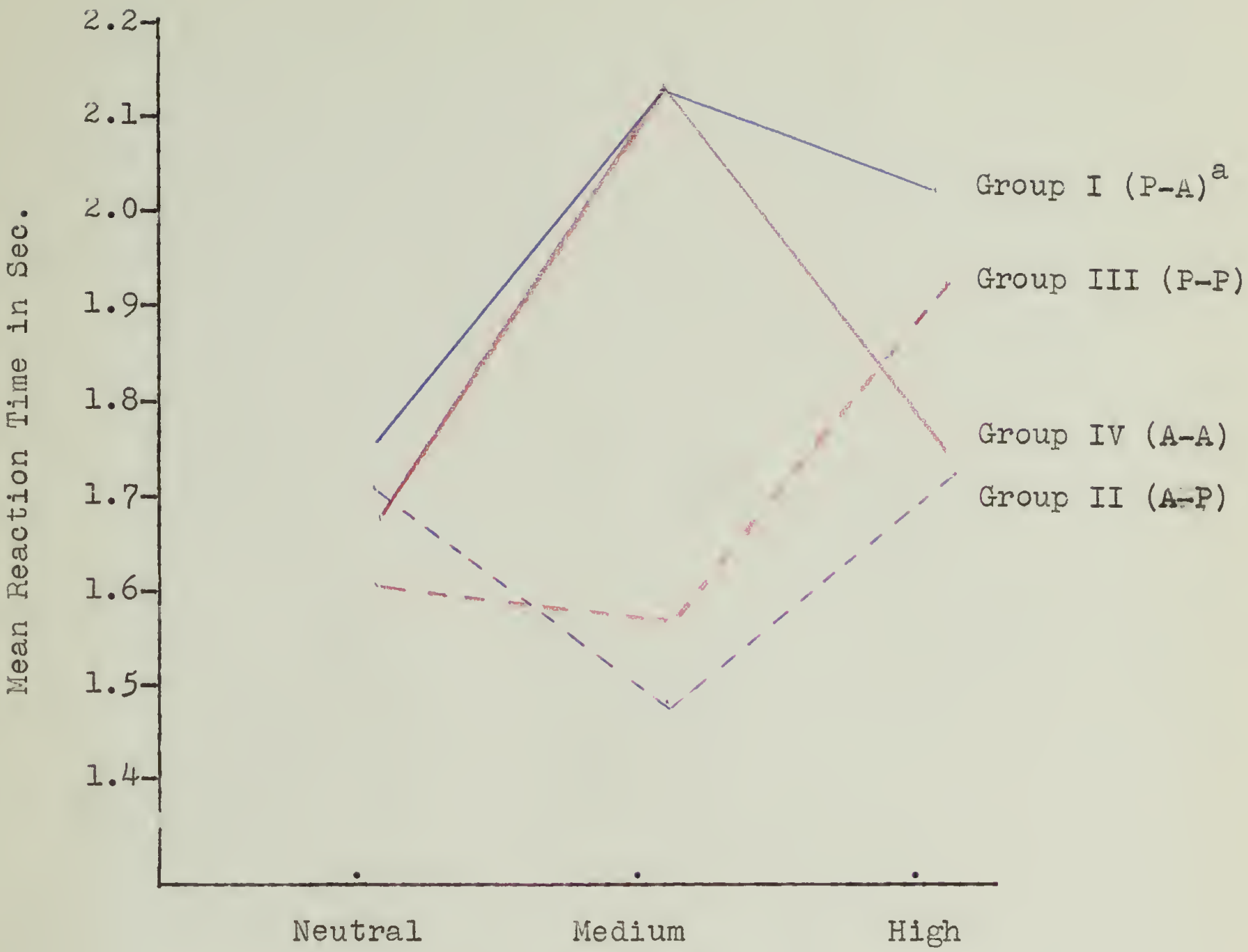

Figure 5. Reaction time of the four groups as a function of stimulus relevance.

a. The groups are defined in terms of their responses to a TAT-type test. P designates the presence of a drive-related (aggressive) response, and A designates the absence of such a response. The first designation refers to the mode of response on the low stimulus-relevance TAT picture, the second designation refers to the high stimulus-relevance picture. Thus Group P-A refers to the group who expressed an aggressive response to the low stimulus-relevance picture while inhibiting such a response to the high stimulus-relevance picture.

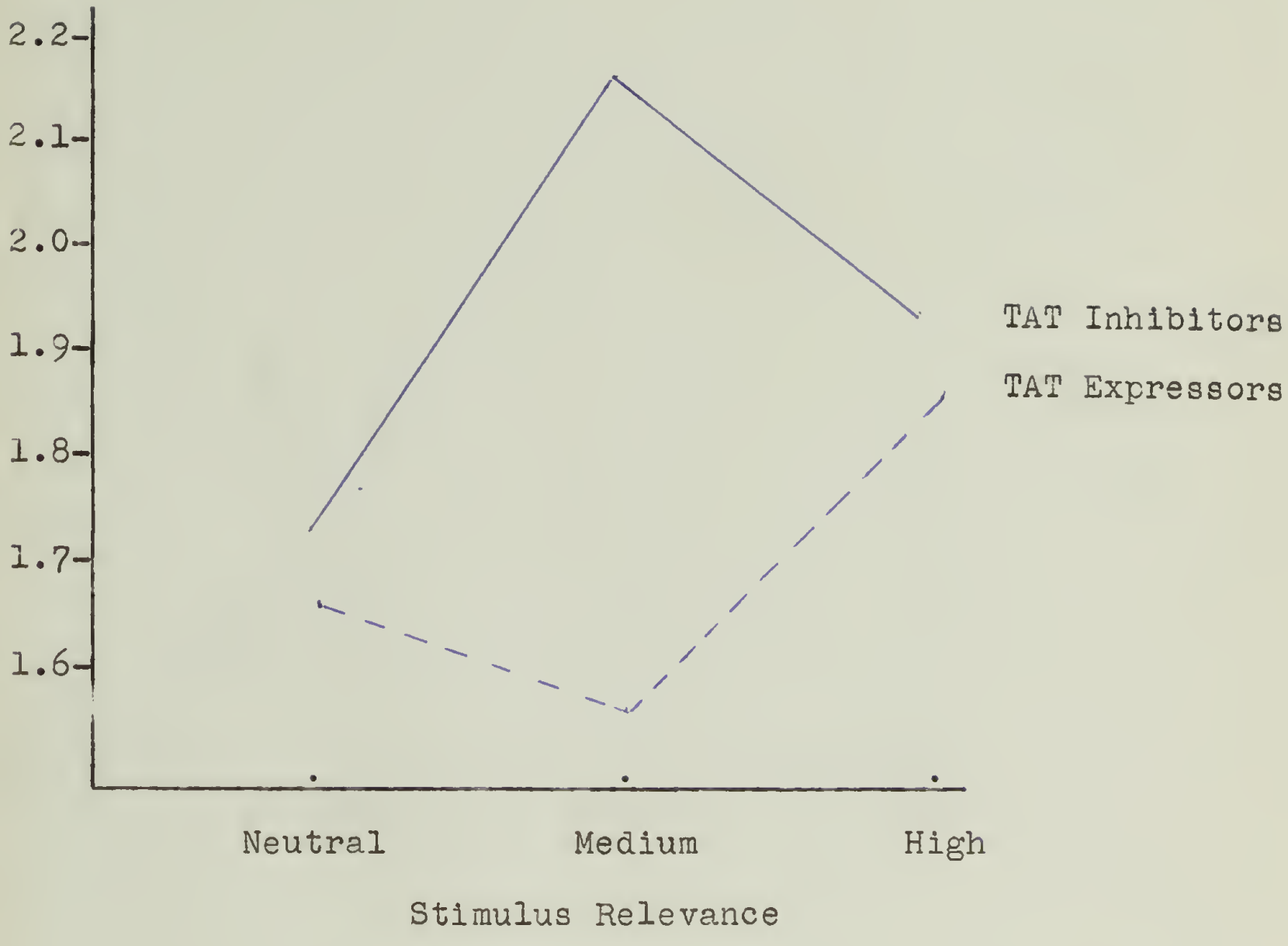

Figure 6. Reaction time on the word association test as a function of thematic aggressive responses to a TAT stimulus of high aggression.

stimulus-relevance words, with a slight decrease to the high stimulus-relevance words.

To ascertain if performance on the low stimulus-relevant TAT-type pictures alone is related to a heightened reaction time to the aggressive words, the reaction times of Groups I and III (characterized by expression of an aggressive response to the low stimulus-relevance picture) were combined and compared to Groups II and IV (characterized by inhibition of an aggressive response to the low stimulus-relevance TAT pictures). As can be seen from Table 7, this effect is not significant.

The model of conflict assumes that individuals characterized by conflict over aggression express aggressive responses to low stimulus-relevance TAT pictures and inhibit such responses to high stimulus-relevance pictures. However, as again seen from Table 7, this joint effect is not significant when the four groups are analyzed together. It should be noted, however, that Group IV (uniform inhibition) gives an exaggerated version of an increase in reaction time to words in the medium stimulus-relevance category. This group may be the most inhibited according to the theory.

Discussion

Galvanic Skin Response

It was hypothesized that individuals characterized by conflict over aggression, as determined by thematic responses, produce a gradient of GSR as a function of increasing stimulus-relevance embedded in a word association test.

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When the conflict group, defined in terms of expressing aggressive responses to TAT pictures low in stimulus-relevance and inhibiting such responses to pictures high in stimulus-relevance, was compared to the control group, a significant difference was found between the two groups as a function of word level (stimulus-relevance) in the word association test. The control group was found to show only a slight increase in GSR across word levels, whereas the conflict group showed a sharp increase to words which are drive-related. However, the conflict group did not produce a monotonic gradient, but rather an increase in GSR to words in the medium stimulus-relevance category and then a decrease in GSR to words in the high stimulus-relevance category. Why the curve for the conflict group did not continue to rise in a monotonic function across word levels is somewhat perplexing, since theoretically these individuals should show the largest GSRs to words most directly related to their conflict over aggression. One explanation for this effect may be due to the possibility that the conflict Ss have reached their ceiling of GSR responsiveness to the medium stimulus-relevance words. In other words, since the difference in GSR between the medium and high stimulus-relevance words is not significant, the decrease in GSR may represent an artifact of this particular group. That such a curve is not an artifact of the group, or the selection of words, is somewhat supported in an experiment by Epstein and Fenz

(in press). They found that experienced parachutists on the day of a jump demonstrated an increase in GSR and reaction time up to the mid-point of the stimulus-relevance dimension, after which a decrease occurred as the stimuli became more highly drive-relevant. Inexperienced parachutists, on the other hand, demonstrated a monotonically increasing gradient of GSR and reaction time with increasing stimulus-relevance. In explanation of the curve for the experienced parachutists, which corresponds to the curve for the conflict group in this study, Epstein and Fenz suggest that experience and mastery are associated with an inhibition or extinction of anxiety-producing responses elicited by highly drive-relevant stimuli. In terms of the present study, an explanation similar in principle would be that the individuals who are in conflict over aggression have learned to cope by means of inhibition with the events most directly connected with the conflict, but that this coping effect has not been extended to stimuli somewhat further removed from the conflict. That is, such individuals may have learned to inhibit anxiety-producing hostile responses related to such words as kick, kill, stab and smash, but this inhibition does not extend to words such as chase, tease, push, and grab. Moreover, these medium stimulus-relevance words may produce a greater effect because the activities represented by such words may be within the acting domain of the individual. In other words, it is more likely that the Ss would participate more fully in those activities represented by

the medium stimulus-relevance words than the words in the high stimulus-relevance category.

Reaction Time

It was hypothesized that individuals characterized by conflict, defined in terms of thematic responses, produce a gradient of reaction time as a function of increasing stimulus-relevance built into a word association test. When the conflict group was compared to the control group it was found that they differed significantly in their reaction times as a function of stimulus-relevance. But, as with the GSR, the conflict group does not show a monotonic gradient of reaction time as a function of word-level. However, the conflict group does significantly differ in reaction time to aggression and neutral words, whereas the control group does not. Again, the explanation for the curve exhibited by the conflict Ss may be that they have learned to inhibit anxiety-producing responses which are elicited by the more highly stimulus-relevant stimuli. It would be interesting to see if individuals who have experienced real difficulty in mastering their conflict over aggression (for example, those involved in charges of assault) demonstrate a different kind of curve, one that increases monotonically with increasing stimulus-relevance.

Using the reaction time measure, it was found that the four groups--the conflict group, the control group, the group who expressed aggressive responses to both tne low

and high stimulus-relevance TAT pictures, and the group who inhibited such responses to both the low and high stimulus-relevance pictures--differed significantly as a function of word level. Furthermore, it was found that inhibition of an aggressive response to the high hostility TAT picture accounted for this significant difference. This implies that inhibition of a drive-related response to a highly stimulus-relevant TAT-type picture is a more important factor than expression of a drive-related response to low stimulus-relevant pictures in measuring conflict. The conflict theory, however, assumes that both expression of drive-related responses to pictures low in stimulus-relevance and inhibition of such responses to pictures high in stimulus-relevance is necessary in differentiating those individuals characterized by conflict. That such an effect was not found may be due to several factors. One such factor may be that characteristics other than just low stimulus-relevance have to be considered in understanding responses to TAT-type pictures. Saltz (1961), in whose study these low stimulus-relevance pictures were used, points out that ambiguity of the picture may be a critical factor. By ambiguity he means the number of alternative interpretations which the picture allows the story teller to make. He notes that the two TAT-type pictures used as the low stimulus-relevance pictures in this study differed in ambiguity and along dimensions other than stimulus-relevance, and it may be that these differences are critical when defining low stimulus-relevance in TAT-type pictures.

Another reason that such an effect was not found may be due to the possibility that individuals may not express drive-related responses to low stimulus-relevance TAT pictures because of either a low total drive level or an inhibition of such drive-related responses. For these reasons, the failure to approach, in terms of expression of drive-related responses to TAT pictures low in stimulus-relevance, is more difficult to interpret than avoidance, in terms of inhibition of drive-related responses to pictures high in stimulus-relevance, since there can not be conflict without inhibition.

The finding that the four groups--the conflict group, the control group, the group who expressed drive-related responses to both the low and high stimulus-relevance TAT pictures, and the group who inhibited such responses to the low and high relevant pictures--did not differ as a function of stimulus-relevance on the GSR measure is somewhat surprising, since this effect was significant for reaction time. A possible explanation of the difference in results between reaction time and GSR may be because of the markedly different ~~basal levels~~ MEAN GSR of the four groups. This difference in basal conductance levels may have cancelled any effects that were present. Moreover, reaction time and GSR do not necessarily measure the same thing. That is, these two measures may be indices of different levels of the conflict. It should be noted, however, that there was a tendency for the two groups chracterized by inhibition of aggressive

responses to the high stimulus-relevance TAT picture to possess the same kind of gradient. That is, both of these groups demonstrated an increase in GSR to words at the midpoint of the stimulus-relevance dimension, and then a decrease in GSR to the most highly stimulus-relevant words. Also, the groups characterized by expression of aggressive responses to the high stimulus-relevance TAT picture demonstrated a relatively flat gradient as a function of word-level in the word association test. These two tendencies, which imply that inhibition of an aggressive response to a high stimulus-relevant TAT picture is more critical as an indication of conflict, becomes significant when reaction time is used as the measure. Thus, with both measures the same kind of effect is noted, namely, that inhibition of a drive-related response to a high stimulus-relevance TAT picture is the more critical factor in the indication of conflict, except that this effect is not significant when using the GSR measure, and it is significant when using the reaction time measure.

Summary

The purpose of this study was to verify experimentally theoretical assumptions stemming from a model for the measurement of conflict. Subjects were chosen from among those that had served in a previous experiment (Saltz, 1961) in which they were required to tell stories to TAT-type pictures ordered along a dimension of stimulus-relevance.

Based upon theoretical considerations of the conflict theory, Ss were divided into four groups on the basis of the stories they told to low stimulus-relevance and high stimulus-relevance TAT-type pictures. The primary conflict group consisted of those Ss who expressed drive-related (aggressive) responses to pictures low in stimulus-relevance and inhibited such responses to pictures high in stimulus-relevance. The primary control group consisted of those Ss who gave no drive-related responses to the pictures of low stimulus-relevance and expressed drive-related responses to the pictures of high stimulus-relevance. A third group consisted of those individuals who expressed drive-related responses to both the low and the high-relevance pictures. A fourth group consisted of those individuals who expressed no drive-related responses to any of the three pictures.

All Ss were given a specially constructed word association test which had built into it a dimension of stimulus-relevance, represented by three levels of words related to aggression. Two measures were taken, GSR and reaction time. The major findings may be summarized as follows:

1. Individuals said to be characterized by conflict over aggression on the basis of their thematic responses exhibited longer reaction times and larger GSRs to aggressive words than did individuals not characterized by conflict over this drive.

2. With both reaction time and GSR the conflict group did not demonstrate a monotonic increase in response as a

function of stimulus-relevance, but rather an increase in GSR and reaction time to the medium stimulus-relevance words, and then a decrease to the high stimulus-relevance words. The conflict group showed a significant difference both in GSR and reaction time between pooled aggressive and neutral words in the word association test.

3. On the basis of the reaction time measure, inhibition of an aggressive response to a high stimulus-relevance TAT-type picture appears to be a more critical factor than expression of such a response to a low stimulus-relevance picture, or the two indices taken together, in differentiating individuals characterized by conflict over aggression.

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Approved by:

Seymour Epstein

Claude C. Peet

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